

# DETECTOR SIMULATIONS WITH **DD4hep**

CHEP 2016 Conference

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*San Francisco, 11 October 2016*



This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement no. 654168.



**AIDA**<sup>2020</sup>

# Motivation

- ▶ **Complete Detector Description**
  - ▶ Providing geometry, materials, visualiation, readout, alignment, calibration...
- ▶ **Supports full experiment life cycle**
  - ▶ Detector concept development, detector optimization, construction, operation
  - ▶ Facile transition from one stage to the next
- ▶ **Single source of information → consistent description**
  - ▶ Use in simulation, reconstruction, analysis, etc.
- ▶ **Ease of Use**
- ▶ **Few places for entering information**
- ▶ **Minimal dependencies**

# Summary and Conclusion

- ▶ DD4hep provides a consistent single source of detector geometry for simulation, reconstruction, analysis
- ▶ Enables the simulation of particle collisions in detectors with minimal effort: simple, easy, flexible
- ▶ The DD4hep toolkit is getting accepted by wider hep community
  - ▶ Use by CLIC, ILC, FCC Communities
- ▶ Development continues in parallel with validation
- ▶ DD4hep can host user plugins: extensible
- ▶ Continued plugin suite development to cover all simulation needs (I/O, MC truth, etc)